

# Environmental Science (ENSC)

---

## Courses

### ENSC 10001. Environmental Science Laboratory. 1 Hour.

Laboratory, field trip, and discussion sessions covering the concepts and information allowing students to critically evaluate environmental issues. Topics will include: laboratory safety, recycling, composting, geographic information systems, soil testing, water quality, hazardous wastes, waste disposal, wetlands, wastewater treatment, and sustainable food systems. Laboratory 2 hours/week. Corequisite: ENSC 10003. (Typically offered: Fall and Spring)

### ENSC 10003. Environmental Science. 3 Hours.

Series of lectures and discussions introducing the topic of environmental science including factors related to water, soil, and air quality. (Typically offered: Fall and Spring)

### ENSC 100H1. Honors Environmental Science Laboratory. 1 Hour.

Laboratory, field trip, and discussion sessions covering the concepts and information allowing students to critically evaluate environmental issues. Topics will include: laboratory safety, recycling, composting, geographic information systems, soil testing, water quality, hazardous wastes, waste disposal, wetlands, wastewater treatment, and sustainable food systems. Laboratory 2 hours/week. Corequisite: ENSC 10003. (Typically offered: Fall and Spring)

### ENSC 100H3. Honors Environmental Science. 3 Hours.

Series of lectures and discussions introducing the topic of environmental science including factors related to water, soil, and air quality. If taking course for University core Natural Science credit, ENSC 10001 is a co-requisite. Corequisite: Drill Component. Prerequisite: Honors standing. (Typically offered: Fall and Spring)

### ENSC 30003. Introduction to Water Science. 3 Hours.

Properties, occurrence, and description of the types, functions, quality and quantity, potential contaminants, uses, and guiding policies and regulations of the various water resources in the environment. Prerequisite: (ENSC 10003 OR CHEM 10003 (or higher) OR GEOL 11103 (or higher) OR BIOL 10103). (Typically offered: Spring)

### ENSC 31003. Plants and Environmental Restoration. 3 Hours.

Selection, establishment, and use of plants to promote soil stabilization, water quality, and wildlife habitat. Principles and practices of managing plants for soil remediation, nutrient and sediment trapping, and restoration of plant communities. Prerequisite: CSES 12003 or HORT 20003 or BIOL 10303. (Typically offered: Fall Even Years)

### ENSC 310H3. Honors Plants and Environmental Restoration. 3 Hours.

Selection, establishment, and use of plants to promote soil stabilization, water quality, and wildlife habitat. Principles and practices of managing plants for soil remediation, nutrient and sediment trapping, and restoration of plant communities. Prerequisite: CSES 12003 or HORT 20003 or BIOL 10303 and honors standing. (Typically offered: Fall)

### ENSC 32201. Ecosystems Assessment Laboratory. 1 Hour.

The purpose of this laboratory is to complement concepts learned in lecture by carrying out experiments that familiarize students with methods used in soil and aquatic ecology. Students will collect samples, analyze and interpret data obtained from soil and water samples. Lab will meet once per week for 3 hours. Corequisite: ENSC 32203. (Typically offered: Fall Even Years)

### ENSC 32203. Ecosystems Assessment. 3 Hours.

Application of basic ecological principles to gain an appreciation for ecosystem assessment and management. Lecture 3 hours per week. Prerequisite: BIOL 10103. (Typically offered: Fall Even Years)

### ENSC 32603. Soil and Water Conservation. 3 Hours.

Effect of land use on water quality. Major sources of agricultural nonpoint pollutants. Best management practices used to minimize water quality impacts. Prerequisite: CSES 22003. (Typically offered: Fall)

### ENSC 34103. Principles of Environmental Economics. 3 Hours.

An introductory, issues-oriented course in the economics of the environment. What is involved in society making decisions about environmental quality will be studied. Environmental issues important to the State of Arkansas and the United States will be emphasized. Prerequisite: AGECE 11003 or ECON 22003. (Typically offered: Spring)

### ENSC 36003. GIS for Environmental Science. 3 Hours.

Provide instruction on the uses of GIS techniques in solving practical environmental and agricultural land use problems. Areas include: 1) an introduction to spatial variability in soils with an emphasis on the application of GIS techniques to map and understand spatial parameters important to different land uses, and 2) development of individual experience in the use of GIS in solving environmental and agricultural problems using an oral and written term project. Prerequisite: CSES 22003. (Typically offered: Spring Odd Years)

### ENSC 39303. Environmental Ethics. 3 Hours.

The course addresses ethical questions about nature and the natural environment. Topics of discussion include anthropocentric and biocentric ethics, population control, obligations to future generations, animal rights, moral considerability, Leopold's land ethic, deep ecology, and ecofeminism. Lecture/discussions 3 hours per week. Prerequisite: ENSC 10003 or PHIL 20003 or PHIL 21003. (Typically offered: Spring)

### ENSC 4000V. Special Problems. 1-3 Hour.

Work on special problems in environmental science or related fields. (Typically offered: Irregular) May be repeated for up to 8 hours of degree credit.

### ENSC 400HV. Honors Special Problems. 1-3 Hour.

Work on special problems in environmental science or related fields. Prerequisite: Honors Standing. (Typically offered: Irregular) May be repeated for up to 8 hours of degree credit.

This course is equivalent to ENSC 4000V.

### ENSC 40203. Water Quality. 3 Hours.

Physical, chemical, and biological characteristics of natural waters (rain, river, lake, soil, ground, etc.). Discussion of water quality parameters such as pH, alkalinity and acidity, redox, hardness, BOD, TSS, etc. Aquatic processes of pollutants and principles of modeling. Prerequisite: CHEM 14203 and CHEM 14201 and BIOL 10103 and BIOL 10101. (Typically offered: Fall)

### ENSC 40303. Analysis of Environmental Contaminants. 3 Hours.

Methods of analysis for inorganic and organic contaminants, and microorganisms in soil and water. Quality assurance and quality control, sampling protocols, sample handling, instrumentation and data analysis. Lecture 3 hours per week. Pre- or Corequisite: CHEM 26103 and CHEM 26101 or CHEM 36053 and CHEM 36051. (Typically offered: Spring Even Years)

### ENSC 42603. Environmental Soil Science. 3 Hours.

Study of the behavior of pesticides, toxic organic compounds, metals, nutrients, and pathogenic microorganisms in the soil/plant/water continuum. Lecture 3 hours per week. Pre- or Corequisite: PHYS 20103 and PHYS 20101. (Typically offered: Spring Even Years)

### ENSC 44001. Professional Certification Preparation. 1 Hour.

This class is meant to reinforce concepts and skills already learned in other soil and environmental science and related courses and to provide the opportunity to prepare to take a national certification examination. If so chosen, students may pursue certification as soil or environmental science professionals. Prerequisite: Senior standing. (Typically offered: Spring)

**ENSC 50201. Water Quality Laboratory. 1 Hour.**

Field and laboratory experience in physical, chemical, and biological characteristics of natural waters (rain, river, lake, soil, ground, etc.). Laboratory experiments in water sampling, measurement of water quality parameters such as pH, alkalinity and acidity, redox, hardness, BOD, TSS, etc., and instrumentation. (Typically offered: Fall)

**ENSC 50203. Water Quality. 3 Hours.**

Physical, chemical, and biological characteristics of natural waters (rain, river, lake, soil, ground, etc.). Discussion of water quality parameters such as pH, alkalinity and acidity, redox, hardness, BOD, TSS, etc. Aquatic processes of pollutants and principles of modeling. Prerequisite: CHEM 14203, CHEM 14201, BIOL 10103 and BIOL 10101 or equivalent courses from undergraduate institution. (Typically offered: Fall)

**ENSC 50303. Analysis of Environmental Contaminants. 3 Hours.**

Methods of analysis for inorganic and organic contaminants, and microorganisms in soil and water. Quality assurance and quality control, sampling protocols, sample handling, instrumentation and data analysis. Lecture 3 hours. Prerequisite: Graduate standing. (Typically offered: Spring Even Years)

**ENSC 54001. Professional Certification Preparation. 1 Hour.**

This class is meant to reinforce concepts and skills already learned in other soil and environmental science and related courses and to provide the opportunity to prepare to take a national certification examination. If so chosen, students may pursue certification as soil or environmental science professionals. (Typically offered: Spring)